

matter), and to every page its own private "prop." These are merits which the editor can rightly appropriate to himself (which he does in his Preface).

On the dexter page, *in ordine longo*, come the "references," saving the pupil the horrid nuisance of turning back (as he lies prone on the ground) to see what "def. 15" is, and this kind (?) action is carried on to Prop. 48. So that if this one definition had obtruded itself into each proposition, it would have been printed forty-eight times and ever would it have greeted the student with a cheery "Here we are again!"

But this is a fault—unless all the first book could be printed on one side of a not too unwieldy page—which Mr. Arnett's book must be content to share with our "Revised Bible" references to such words as "slave" for the A.V. "servant."

Below the "references" come a very copious collection of riders. We have looked at the ludicrous side of matters, but it would be doing Mr. Arnett a very great injustice if we confined our attention to all the conveniences he has got together to ease the work of this class of students, of whom (*horres cinus referentes*) we have had experience in time past, in getting up this particular subject.

Throughout there is plenty of judicious explanation and illustration; the theorems are grouped in sections of subject-matter, as direct and converse theorems, so are the problems in sections, and there is a genealogical chart for the first twenty-six propositions. In fact nothing is scamped.

To return to the dexter page, the riders are exceedingly varied and well-grouped, and are calculated to draw out the intelligence of a thoughtful pupil if such an one uses the book.

If the first book of the glorious "Elements" must be edited at such length, we commend Mr. Arnett's edition to those who require such "props" as are here supplied, feeling convinced that if they cannot master the "props" with them, then the study of geometry is not their proper work.

Botany. A Specific Subject of Instruction in Public Elementary Schools. By Vincent T. Murché. (London: Blackie and Son, 1885.)

THE preface to this little volume states that "the three books which form this series are emphatically children's books, and not text-books for South Kensington students." As long as the author confines himself to that part of the science which is, in our opinion, best adapted to the mind of a child, his "chatty, experimental method" may very probably gain the attention of youthful readers. The first forty-eight pages, which he devotes to external morphology, are unpretentious and successful. We may well wish that the author had confined himself to external morphology; but he launches out into anatomy and physiology—branches of the science which are ill-adapted at best to the mind of a child; in this middle section of the book his success leaves him when he states that "the epidermis of the orange consists . . . of a thick peel;" that "there is in every plant . . . a peculiar vital fluid which is the source of all its solid parts;" this, we are told, is found in spring "in an active state between the bark and the wood. In this condition it is called *cambium*!" It is also stated (p. 58) that the cells of the pith "form the channel by which all the fluids absorbed by the roots are carried upwards towards the leaves and flowers," while the part played in the transfer of fluids by the lignified walls is systematically ignored, and it is expressly stated on p. 78 that "there can be no passage of fluids up or down, except by the process of osmosis." When the author leaves this part of the subject, on which he is, to say the least, not very sound, his success again returns: he describes simply and clearly the chief characters of the flower and fruit; but

concludes with a condensed and not very satisfactory treatment of some of the lower forms of vegetable life.

It is unfortunate that a book, parts of which might prove so useful, should be disfigured by serious blunders; why should not the proof-sheets, in cases like the present, be submitted to some competent authority, who would easily sift out the grosser errors? F. O. B.

Journal of the Royal Agricultural Society of England. Second Series. Vol. 21, Part I. (London: John Murray, 1885.)

THIS journal fully maintains the high character it has acquired under the able editorship of Mr. H. M. Jenkins. The part under notice is a bulky volume of nearly five hundred pages, and includes some eight or ten original papers by well-known agricultural writers, besides the always valuable annual reports of the entomologist, chemist, and botanist to the Society. Prof. Wortley Axe reports on a recent outbreak of abortion in Lincolnshire ewe-flocks, and Prof. Robertson on anæmia in sheep. Mr. S. B. S. Druce, Barrister-at-Law, has a significant paper on the alteration in the distribution of the agricultural population of England and Wales between the returns of the census of 1871 and 1881. Dr. J. H. Gilbert, F.R.S., contributes a sympathetic memoir of the late Dr. Augustus Voelcker, the paper being accompanied by a graphic portrait. Sir J. B. Lawes, F.R.S., writing on sugar as a food for stock, concludes that even at its present low price, sugar does not appear to be an economical substance to use when brought into comparison with other foods which are available to the farmer. Mr. H. Ling Roth writes on Franco-Swiss dairy farming, and Mr. W. Little on the agriculture of Glamorganshire, while the longest contribution to the current part is the first instalment of a report on Canadian agriculture, by Prof. Fream. The author confines his remarks chiefly to the prairie region of British North America, and after discussing the physical and geological features of this vast region, the character of its soils, the composition and value of its native herbage, and the peculiarities of its climate, he proceeds to give an exhaustive description of the agriculture of Manitoba and the North-West Territories, and concludes with an expression of his opinions as to the probable future of prairie farming. The moderate and impartial spirit in which this paper is written will enhance its value to readers on both sides of the Atlantic, and lead them to look forward to the publication of the second part, in which it is proposed to deal with the agriculture of the Eastern Provinces of the Dominion. In the course of his inquiries, Prof. Fream appears to have discovered in "goose wheat" a novelty both of botanical and agricultural interest. This part of the *Journal* also contains a report on the field and feeding experiments at Woburn, by Dr. J. Augustus Voelcker, in which the author gives evidence of the same attention to accuracy and matters of detail as were so eminently characteristic of his late father, to whose vacant post as consulting chemist to the Society he was recently elected by the Council.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

"An Earthquake Invention"

WITH reference to the correspondence on this subject in this week's *NATURE* (vol. xxxii. p. 213), will you permit me to state that the gentleman to whose paper in the British Association Report for 1884 Prof. Piazzzi Smyth refers has long been a

resident of Japan, that he is now on a voyage from that country to Australia and New Zealand, and that it must, therefore, in the ordinary course of things, be some months before he can see and reply to the correspondence in question. In the mean time, it may not be amiss to point out that the capital of Japan is about 2,000 miles from the learned societies of Europe and their *Proceedings*; and that there, as described, a man must be content to work with what he finds at his hand; there are no great public libraries in which we can find out readily what has been done before in any particular field. Mr. Stevenson's paper appears to have been published twenty years ago, and the chances are that it never, from that time to the present, reached the East. That it never came to the knowledge of "the B.A. man" will be readily believed by the many readers of NATURE who know what a careful and conscientious worker that man is. Besides, unless it be presumptuous in an unscientific person to say so, the learned Professor's solitary premiss does not at all support his amiable conclusion. If he will again examine the letters, to the publication of which he appears to have given his consent without a clear notion of what he was doing, he will doubtless perceive that one man may carry out experiments in Japan in 1884 without knowing that similar experiments had been carried out by another man in England in 1864; and when Prof. Piazzi Smyth has reached this point, it may occur to him that the tone and expressions of his letters, so far as they refer to the gentleman in Japan, require more consideration than they received when they were penned.

It should also be added that these experiments with regard to buildings in earthquake countries form only one of a long series of investigations which the gentleman in question has for years past been pursuing over the whole domain of seismology. Most of his numerous papers on this subject have been noticed from time to time in NATURE. M.

Gray's Inn, July 3

On the Occurrence of *Lumpenus lampetriformis* and *Gadiculus argenteus* off Aberdeen

I RECORDED and figured in the *Proceedings* of the Zoological Society for 1884 the first species of *Lumpenus lampetriformis* obtained in Great Britain. It was a male 10.7 inches long, captured trawling by Prof. McIntosh, fifteen miles off St. Abb's Head. On June 20 I received a letter from Mr. Sim, of Aberdeen, inclosing a sketch of a fish which had become entangled in the net of a steam trawler, and which specimen he was good enough to forward for my inspection. It is a female of the same species 8.6 inches in length, in which the caudal fin differs from that of the male example in that its form is lanceolate. The second specimen, which I received at the same time from Mr. Sim, was that of a *Gadiculus argenteus*, Guichenot, which was cast up on the beach after a slight storm on April 13, 1885. To this latter fish a considerable amount of interest attaches itself. Pertaining to a genus whose habitat is considered intermediate between the littoral and deep-sea zones, I have been in doubt whether it has or has not been previously obtained off our shores. Couch labelled a fish of this species from the Porcupine Expedition as *Macrourus linearis*, and which is in the British Museum collection. Of it he wrote as follows:—"Much resembling a whiting, but shorter in proportion to its depth and with a much larger eye. Caught from a depth of 183 fathoms, muddy ground, 54° 10' N. and 10° 59' W. Length about 6 inches; no barb; the head short, eyes large, mouth capacious, teeth small, dorsal fins three, anal two, tail a little concave, colour in spirit pale yellow. If we can suppose that a whiting can live at such a depth, we can suppose also that the eye might become larger and the body rather shorter, proportionally, but otherwise it is a distinct species and yet nearly alike; but from the latitude, and especially the longitude, it is scarcely a British fish."

I should have deemed a fish from such a spot undoubtedly British, but as I was not quite sure whether Mr. Laughlin, who had been in charge of the fish collection in the Porcupine Expedition, might not have inadvertently mixed up Mediterranean forms with those from higher latitudes, and as *Gadiculus argenteus* originally was obtained from the coast of Algiers, I wrote to him on the subject. However, he would only reply that "I do not think he [Mr. Couch] had any of the Mediterranean fish; I cannot remember it, it is so long ago." It is very interesting being able, after so many years' interval, to adduce corroborative evidence as to this fish being entitled to a position in the British fish fauna, the *Porcupine* specimen having been

obtained on the west coast of Ireland, Mr. Sim's on the east coast of Scotland. The specimen is 3.3 inches in length, D. 11/13/15, A. 16/16, L. 1. 56. There is a dark spot at the base of the anterior rays of the first and second dorsal fins.

Cheltenham, July 4

FRANCIS DAY

Swallows

If "E. H." will take down a swallow's nest (*Hirundo urbana*) directly after the young brood has left it, he will find the lining swarming with two species of active insects altogether out of proportion as to size of the swallow on which they are parasitic. At the same time also the nest contains numerous ovate pupæ as black as jet, evidently the offsprings of the insects which, if kept during the winter following, will develop into wonderfully active wingless imago, which, when liberated, are difficult to capture and kill. These are the gnats, &c., to which "E. H.'s" informant alluded, but they approach in size nearer to sheep lice. Under the microscope they are interesting objects. Circulation can be watched, and in addition to a peculiarly-formed head, pointed rudimentary wings can be seen in shape much like the swallows. It appears to me that swallows do not hatch their parasites on their bodies, but incubate them in the lining of their nests; but a high degree of heat is not necessary to develop the pupa. In my opinion there is no design or intention on the part of the swallow to breed or cultivate parasites for consumption during migration. The life of the parasite depends on the existence of the swallow, and not the swallow upon the parasite. At the present time I have nests in the corners of my windows, and when the migratory season arrives I can safely rely upon a collection of insects and pupa from them which I would gladly send to any of your readers who care to write for them about the middle of autumn. WM. WATTS

Piethorn, Rochdale, July 4

SWALLOWS are infested by at least three genera of parasitic two-winged insects, *Ornithomyia*, *Stenopteryx*, and *Oxypterus*. Figures of these flies may be found in F. Walker's "Insecta Britannica Diptera," vol. ii. Tab. xx. O. S.

Heidelberg, Germany, July 4

"The Evolution of Vegetation"

As the science of botany is interesting to many people according as it throws light on biological questions, perhaps just now, while the Darwin Memorial is still fresh in your mind, you will allow one of the many to make known a want by inserting this letter in your paper.

Prof. Bower, in his article, NATURE, vol. xxxi. p. 460, seems to tell the young botanist to go to the other side of the globe in order to find fresh fields of labour. This sort of work, I should think, is very much needed; but if Prof. Bower or some other master in the science would publish his views relating to the evolution of vegetation, perhaps another motive would be added for the enterprise. I hope I am not asking too largely, though aware that men who have won good reputations may hesitate to print their theories. Yet a Parker has given us "Mammalian Descent," and what he has done to teach us in one direction, surely some one else will in another.

On pp. 4 and 5, "Mammalian Descent," we are told that there are three groups of workers all labouring to build up the truth as it is in Darwin—the zoologists, the palæontologists, and the embryologists. Now there are some botanists who would gladly make a fourth group if a teacher would arise to direct them where and how to work, even if that work was with the zoologists in the land of the Monotremes or at home with the embryologists watching the development of plants, though the plants were of cellular tissue only.

I do hope that I have not written to you in vain.

Bradford, June 23

J. CLAYTON

Foul Water

ALLOW me to call attention to the fact every year—generally some time in May—the sea-water on this coast becomes in a condition that fishermen call "foul." It is due to the presence of enormous quantities of gelatinous masses of small size and spheroidal, cylindrical and irregular forms, in which nucleated granules are imbedded. After immersion, even for a few seconds, ropes, nets, &c., feel as if they had been dipped in thin glue.